

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
14 August 2003 (14.08.2003)

PCT

(10) International Publication Number  
**WO 2003/067286 A3**

(51) International Patent Classification<sup>7</sup>: **C07D 245/00**

**JOSHI, Serena** [US/US]; 10131 Parlett Place, Cupertino, CA 95014 (US).

(21) International Application Number:

PCT/US2003/003829

(74) Agents: **SHORTLE, Rebecca** et al.; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).

(22) International Filing Date: 7 February 2003 (07.02.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10/071,377	7 February 2002 (07.02.2002)	US
60/383,236	22 May 2002 (22.05.2002)	US
10/226,400	23 August 2002 (23.08.2002)	US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **COVALENT PARTNERS, LLC** [US/US]; 330 Beach Road, Burlingame, CA 94010 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **KRIESEL, Josh** [US/US]; 70 Liberty #3, San Francisco, CA 94110 (US). **KARPISHIN, Timothy, B.** [US/US]; 3030 Todd Court, Castro Valley, CA 94546 (US). **BIVIN, Donald, B.** [US/US]; 5224 Shafter Avenue, Oakland, CA 94618 (US). **MERRILL, Grant** [US/US]; 2462 40th Avenue, San Francisco, CA 94116 (US). **EDELSTEIN, Martin, Stuart** [US/US]; 1126 Blythe Street, Foster City, CA 94404 (US). **SMITH, Thomas, H.** [US/US]; 2041 Greenwood Avenue, San Carlos, CA 94070 (US). **WHITEFORD, Jeffery, A.** [US/US]; 1908 Valdez Avenue, Belmont, CA 94002 (US). **JONAS, Robert, Thomas** [US/US]; 3103 David Avenue, Palo Alto, CA 94303 (US). **MICKLATCHER, Mark** [US/US]; 2976 Pickford Way, Hayward, CA 94541 (US).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

15 April 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **NANOFILM AND MEMBRANE COMPOSITIONS**

(57) Abstract: Nanofilms useful for filtration are prepared from oriented amphiphilic molecules and oriented macrocyclic modules. The amphiphilic species may be oriented on an interface or surface. The nanofilm may be prepared by depositing or attaching an oriented layer to a substrate. A nanofilm may also be prepared by coupling the oriented macrocyclic modules to provide a membrane.

WO 2003/067286 A3

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 529212000140	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US03/03829	International filing date ( <i>day/month/year</i> ) 07 February 2003 (07.02.2003)	(Earliest) Priority Date ( <i>day/month/year</i> ) 07 February 2002 (07.02.2002)
Applicant COVALENT PARTNERS, LLC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US03/03829

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : C07D 245/00 US CL : 540/460, 471, 472 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 540/460, 471, 472  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CAS ONLINE		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KORUPOJU et al., Formation of Dinuclear Macrocyclic and Mononuclear Acyclic Complexes of a New Trinucleating Hexaaza Triphenolic Schiff Base Macrocyclic: Structure and NLO Properties, Journal of the Chemical Society, Dalton Trans., 07 August 2000, Vol. 16, pages 2845-2852, especially page 2846.	1-53
A	KORUPOJU et al., New Optically Active Hexaaza Triphenolic Macrocycles: Synthesis, Molecular Structure and Crystal Packing Features, Chemical Communications, 23 June 1998, Vol. 12, pages 1267-1268, especially page 1267.	1-53
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"E" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family	
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 12 December 2003 (12.12.2003)	Date of mailing of the international search report 23 FEB 2004	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Teresa D. Roberts for Brenda L. Coleman Telephone No. 703-308-1235	